User Guide: Bayonet Units

Covers Standard Bayonet Style Hand Held Clinch Units.

BTM® CORPORATION

www.BTMcorp.com

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IMPORTANT!
Read this manual completely prior to operation of the system.

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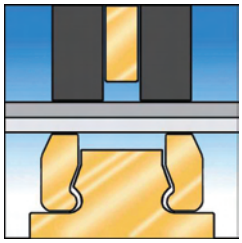
Disclaimer: BTM Reserves the right to ammend the contents of this manual without notice. Contact BTM to verify the latest revision.

1.0 TOG-L-LOC/LANCE-N-LOC OVERVIEW

Tog-L-Loc®

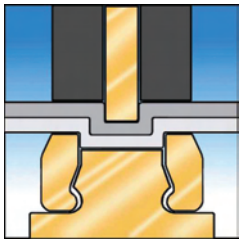
BTM's patented Tog-L-Loc® sheet metal joining system is the simple solution for fastening plain or coated sheet metals. Tog-L-Loc® forms a strong, leakproof joint without welding or riveting in almost any combination of ductile sheet metals. The Tog-L-Loc® system is widely used in the manufacture of automobiles, appliances, furniture, electrical products, building supplies, and more.

TOG-L-LOC® PROCESS



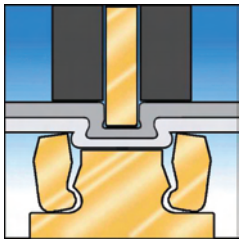
The first step in the Tog-L-Loc® process involves clamping of the material with a punch side stripper.

CLAMPS



Next, the punch draws the material into the die.

DRAWS



As the material flows into the die, the die blades expand, allowing the metal to flow into a strong circular interlock.

LOCKS

Lance-N-Loc®

Lance-N-Loc® is a sheet metal clinching system which creates a strong mechanical joint without the use of external fasteners or welding. The metals are lanced and squeezed to form an interlock below the bottom layer of the sheet metal.

Lance-N-Loc® is good for joining harder materials, multiple layers, and is ideal for use where electrical conductivity is required.

The final result is a joint with a greater width than the drawn section of the metals. This accounts for the high strength of Lance-N-Loc® joints. The entire sequence takes place in a single press stroke.

LANCE-N-LOC® PROCESS

The first step in the process involves the clamping of the material with a punch side stripper.

CLAMPS

Next, the punch draws the material into the die.

DRAWS

As the material flows into the die, the die blades expand, allowing the metal to flow into a strong interlock below the bottom sheet.

LOCKS

Note: Lance-N-Loc® is not leak proof. See Tog-L-Loc®.

2.0 SAFETY

USER RESPONSILBILITY: Each person who is to operate or maintain the Tog-L-Loc unit must be familiar with these, and all other, safety precautions before attempting to use or to service the press equipment. The owner of the equipment is responsible to train and supervise all personnel as to safety precautions.

DANGER: NEVER place hands, fingers, or other body parts in the path of the die and the ram. Accidental operation or damaged and worn control devices can result in severe injuries. ALWAYS use tongs, or other inserting devices, to place materials in the press operating area. DO NOT operate with a second person holding the parts in the unit for joining.

SAFETY GLASSES: Wear safety glasses while operating this system.

SAFETY CONTROL INTEGRITY: Do not alter the control systems, or safety guarding, in any way.

SAFETY CONTROL MAINTENANCE: If a control or operating switch is damaged, or fails to work properly, discontinue use immediately and do not use until the controls are repaired, or replaced and the machine is tested by a qualified, machine maintenace engineer.

EQUIPMENT REPLACEMENT PARTS: Use only original BTM hoses and components with this system.

WORK MATERIAL COMPATIBILITY: Do not attempt to join materials other than those specified by BTM for your tooling.

3.0 START UP PROCEDURE

Read all safety instructions before operating the unit!

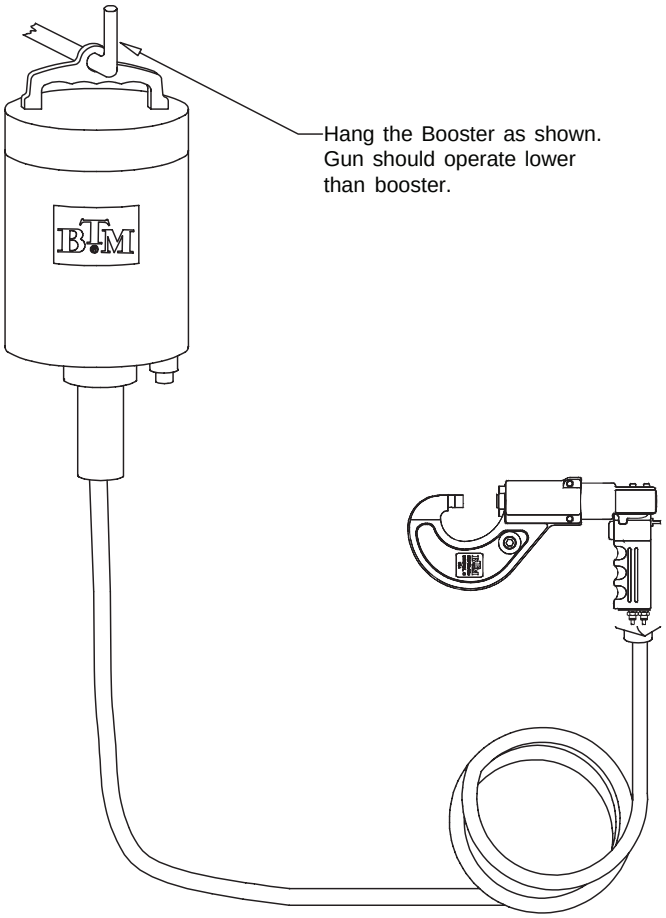
1. After removing your Tog-L-Loc/Lance-N-Loc system from its shipping box, make sure that you have received two sets of Tog-L-Loc, or Lance-N-Loc, tooling. One set is already installed in the gun. The second set should be in a package attached to the gun. Remove the second set of tooling and store it aside.

2. Visually inspect the system for damage due to shipping. If damage has occurred, call BTM immediately.

3. Check hoses, yoke, and the compression mechanism regularly for damage or cracks. Discontinue use if such conditions exist.

4. Remove the booster unit from the box and hang it from the hole in the handle. Make sure the booster unit is securely hung and will not fall or injure someone. The booster should be higher than the gun during operation.

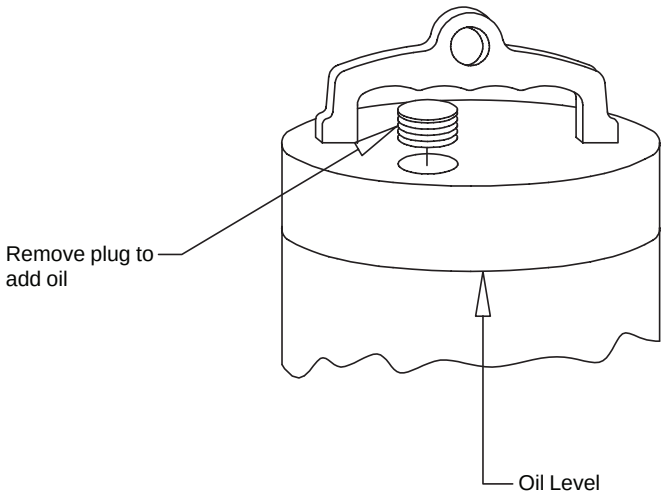
Hang the Booster as shown. Gun should operate lower than booster.



Start-up continues on the next page.

3.0 CONTINUED

5. The booster is shipped with oil in the reservoir. If the oil level is low, oil is added by removing the plug at the top of the booster. The oil level should reach the bottom thread of the booster cap. Oil should be properly handled, and disposed of.



6. Connect your air line to the booster. BTM recommends that the system operates at 80 PSI (5.5 Bar). Clean, dry air should be used. The removal of air supply is required before tool change or service.

7. Press the trigger on the gun and dry cycle the unit. If the unit fails to cycle, air needs to be bled from the system. See section 4 on bleeding the gun.

Unit requirements:

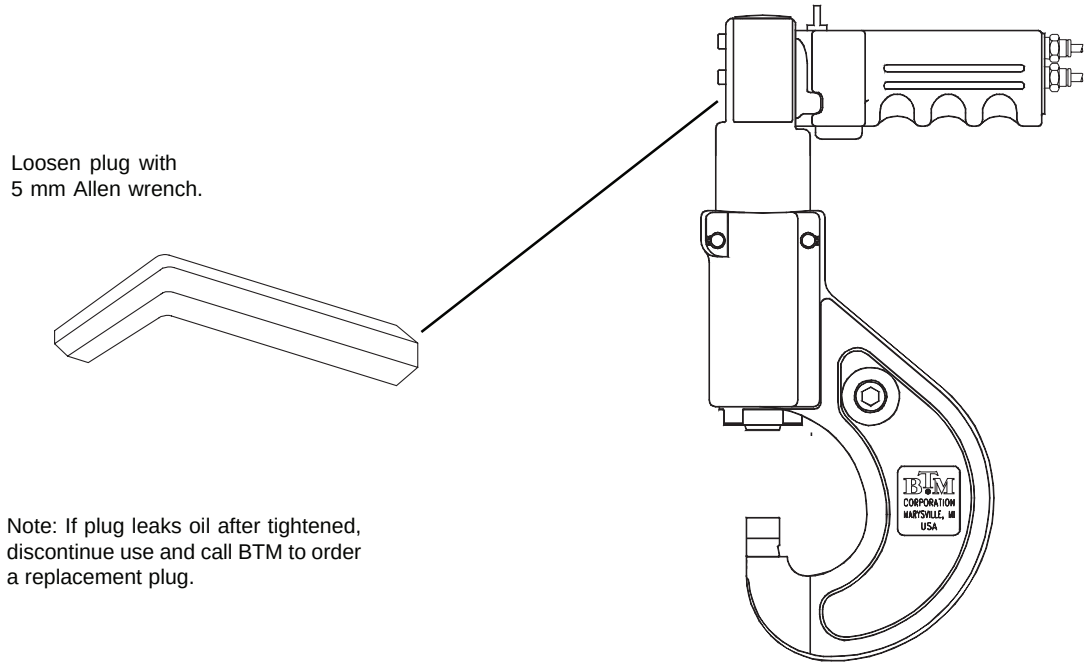
Recommended Air Pressure:	80 PSI (5.5 Bar) BTM recommends that clean, dry air is used.
Maximum Air Pressure:	90 PSI (6.2 Bar)
Recommended Oil:	Amoco AW 32 to DTE 26 or any equivalent, non-foaming oil.
Oil should be handled and disposed of properly.	

4.0 BLEEDING THE GUN

1. Apply air pressure to the booster by squeezing the trigger. Do this between 5 and 10 times.

2. Press and hold the trigger
   (Note: Do not release the trigger until the plug is tightened - See item 3).

3. CAUTION! The unit is under hydraulic pressure. Using a 5mm allen wrench, carefully turn the plug, located at the center of the press unit's endcap, counterclockwise by a small increment between 1/4 and 1/3 of a full turn. Some air and oil should be expelled from the press unit.



Note: If plug leaks oil after tightened, discontinue use and call BTM to order a replacement plug.

4. The bleeding procedure may need to be repeated several times to expel all of the air.

5. This procedure works best when the press unit is lower than the booster.

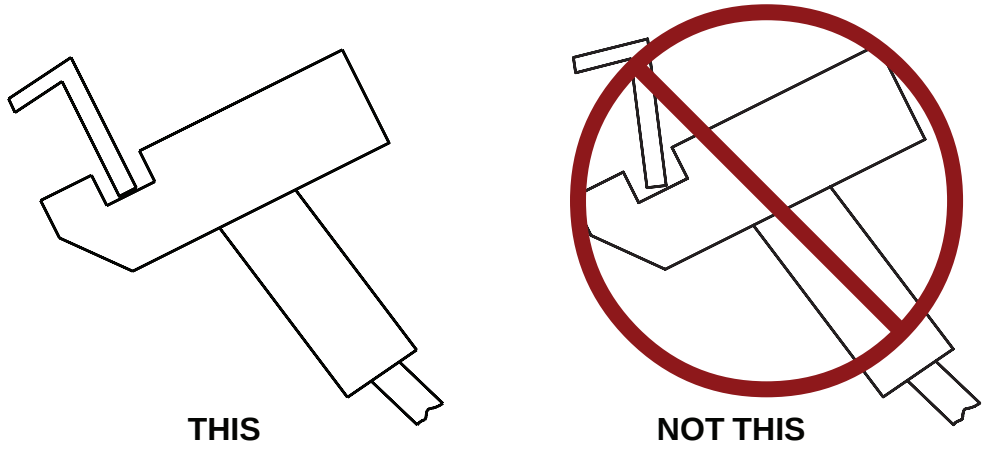
6. Check the oil level. Make sure the reservoir is filled so that the oil reaches the bottom thread on the cap.

5.0 OPERATION

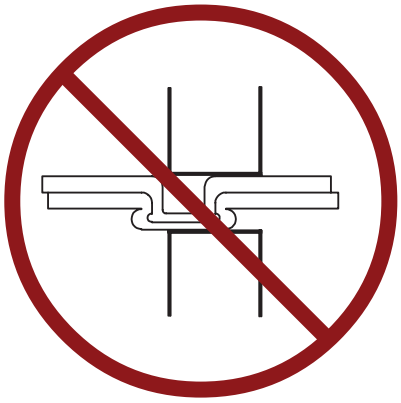
1. Verify that the metals to be joined are the same as specified on the tag affixed to the die (Also see tooling information on section 6 of this manual).

2. Observe all safety instructions as described previously in this manual.

3. Always hold the unit perpendicular to the work in both directions.



4. Never attempt to make a Tog-L-Loc/Lance-N-Loc joint through another Tog-L-Loc/Lance-N-Loc joint, spot weld, or other obstruction.



5. The trigger must be pressed and held throughout the cycle to operate the unit.

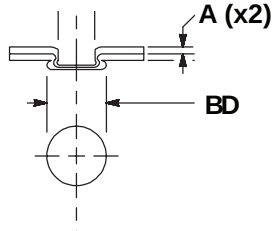
6. When metals of dissimiliar thickness are to be joined, the thicker layer should be to the punch side for best results.

7. The die blade, punch, and stripper must be in place when joining metals. These components are crucial to join quality.

8. Joint quality is monitored nondestructively by measuring the “button dimension” of the formed joint. Read QUALITY CONTROL in the Tog-L-Loc/Lance-N-Loc user’s guide for more detailed information. The button dimension is controlled by adjusting the air pressure (See section 6.1).

6.0 TOOLING

Joint Type: 4,6 [.18"]



Tog-L-Loc®

A (x2) C.R.S.		BD +0,25 -0,00		Shear		Peel	
mm	in	mm	in	N	lbs	N	lbs
0,6	[.024]	6,3	[.250]	1178	[265]	222	[50]
0,75	[.030]	6,7	[.265]	1601	[360]	311	[70]
1,0	[.040]	6,9	[.275]	1734	[390]	400	[90]

Tog-L-Loc tools are preset by BTM to give best joining results with a specific range of metal type and thickness, as charted above. Higher strenths for a specific metal thickness may be obtained with optimized tooling from BTM. All Tog-L-Loc/Lance-N-Loc tools are marked with numbers for easy identification.

TOOL CHANGE PROCEDURE:

Please note: All tooling changes must be done with the press unit in the "open" position.

Removal of the air supply is required before the tool change or service begins.

Use a 2.5mm allen wrench to change the punch and die in the gun.

PUNCH CHANGE:

1. Remove the retaining screw with an allen wrench. Remove the punch from its pocket (It may be necessary to pry with a wrench).

DIE CHANGE:

1. Remove the retaining screw with an allen wrench (It may be necessary to pry with a wrench).

2. When installing dies, care has to be taken so the springs are not damaged. Load the die on its side, bottom first, then slide the bottom of the die toward the front of the gun carefully, so that the springs do not bend. Note: If the springs are bent, the die does not function properly and the gun will form inferior joints.

BUTTON ADJUSTMENT:

Adjustment is achieved by increasing the air pressure to increase button size. Decreasing air pressure decreases button size. Make tests joints until the desired button dimension is achieved.

6.1 JOINT ADJUSTMENT PROCEDURE

Please read all of the procedure before attempting this on your unit. If not, you may cause damage to your tooling.

WARNING!
Start button adjustment at the lowerst possible air pressure to avoid damaging the tooling. Increase the air pressure slowly to achieve a satisfactory joint, or button size.

PLEASE NOTE: THIS PRESS UNIT USES AN AIR PRESSURE RANGE OF 50-90 PSI

TO ADJUST BUTTON SIZES:

Increase the air pressure to increase button size. Decrease the air pressure to decrease button size. Button sizes are checked with a “Go-No Go” gage (One should be supplied with your unit, additional gages can be purchased from BTM).

ADJUSTMENT PROCEDURE:

1. To achieve proper button sizes (As noted in the Tooling Component Record - Section 6.2), start at the lowest operating air pressure (50 PSI).

2. Gradually increase air pressure, and check the button dimension frequently.

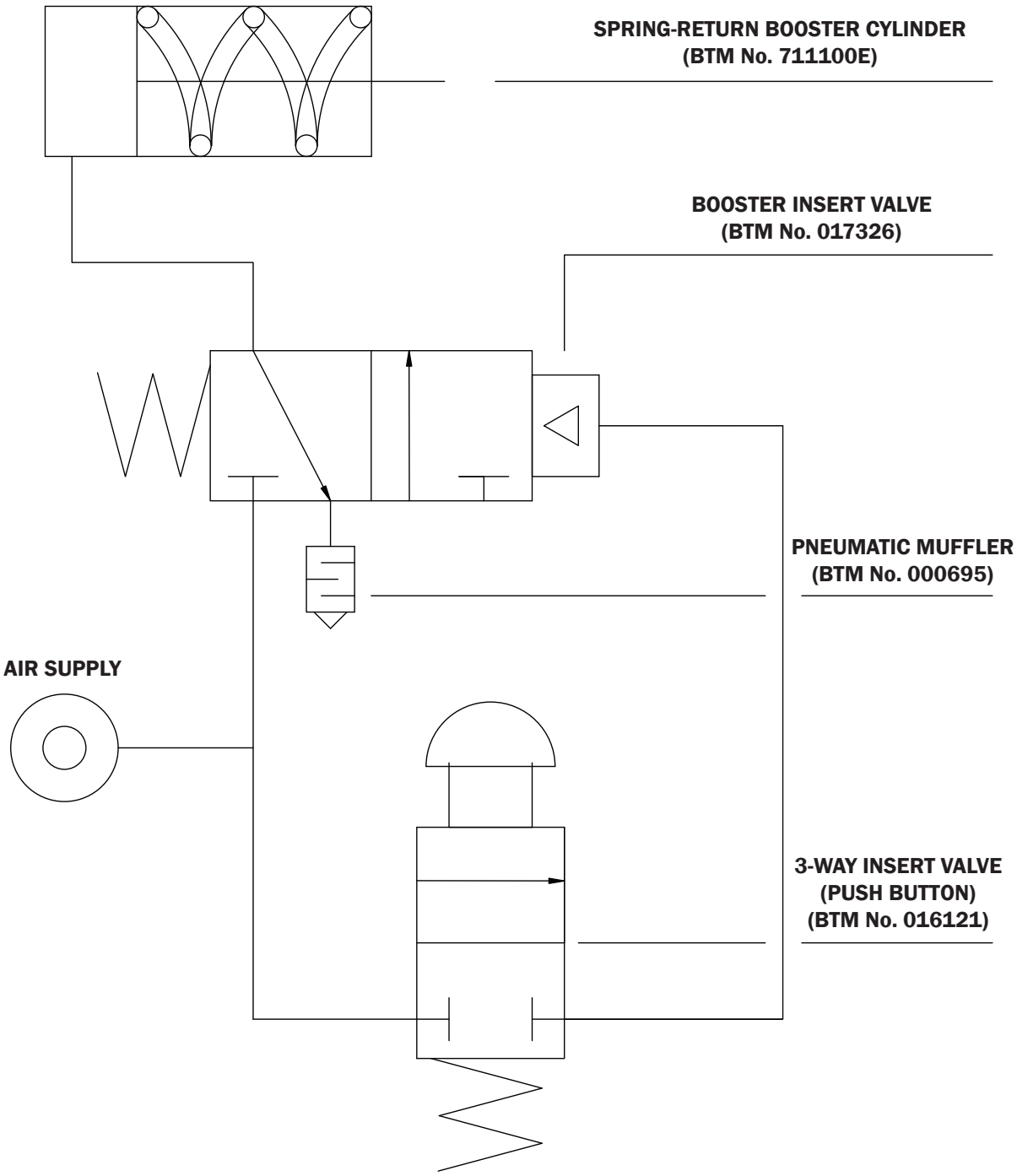
3. Repeat until button dimension is proper, or until you reach maximum operating PSI (90 PSI).

4. Mark air pressure at time of proper button dimension. Operate normally at this air pressure, do not operate the unit above this air pressure.

(If you reach 90 PSI, and you have not made a proper button dimension, per the Tooling Component Record, call BTM immediately, DO NOT go over 90 PSI.)

Whenever tooling is changed, test the joints to see that they are still proper. If they are not, repeat the process above to find correct air pressure.

ALL PNEUMATIC SINGLE TRIGGER CONTROL UNIT



Please Note: The Push Button is not considered part of the Booster and is therefore not on the Booster drawing.

BTM® CORPORATION

BTM has a wide range of products to meet your needs including (but definitely not limited to):

PNEUMATIC CLAMPS & GRIPPERS

Light & Heavy Duty Clamps

Clamps range from light duty omni-directional head clamps to heavy duty precision sealed power clamps.

Light & Heavy Duty Grippers

BTM's Gripper line ranges from compact light duty models to locking & non-locking heavy duty models.

PIN PRODUCTS

Precision Shot Pin cylinders

BTM's Precision Part Locators are used whenever your production needs require locating precise holes in a workpiece.

Pin Locator Clamps

BTMs' Pin Locator Clamps and Single Finger clamps are used in stationary part nests, welding fixtures, transfer systems, robot end effectors and numerous other clamping applications. These clamps locate and hold the work while other operations are performed.

Standard pin sizes range from 12.5mm - 40mm.

SHEET METAL JOINING

Tog-L-Loc®

BTM's Tog-L-Loc® sheet metal joining system is a cold forming process that quickly joins pre-painted, galvanized, coated, and dissimilar metals.

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Lance-N-Loc™

BTM's Lance-N-Loc™ Joining System produces clean, strong and consistent joints in most coated or uncoated metals.

Ways to Tog-L-Loc®

Press Brakes

Handheld Units

Die Sets

Universal Presses

Hydraulic Units

Specialized Units

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